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### REMARKS

Claims 17-27 are pending in the application.

Claims 9-16 have been cancelled, without prejudice.

New claims 17-27 have been added, but do not contain any new matter. Support for each of the new claims is found at least in claims 1-8 as originally filed, and in the Specification at pages 11-13.

In Paper No. 9, the Examiner has stated that claim 12 would be allowable if rewritten in an independent form that included all of the elements of the base claim and the intervening claim. As basis for this statement of allowability, the Examiner wrote:

The present invention claims a non-aqueous electrolyte secondary battery wherein at least one of the positive electrode, the non-aqueous electrode electrolyte, and negative electrode contains a mixture of two or three phosphates selected from the group consisting of formula (1), formula (2), and formula (3) ... and each phosphate in the mixture comprises not less than 30 volume percent based on the total volume of the mixture. The closest prior art of record, Gan *et al.* ... does not disclose, teach, or suggest that each phosphate in the mixture comprises not less than 30 volume percent based on the total volume of the mixture.

New claim 17 is merely a rewritten version of claim 12, including the elements of the base claim and the intervening claim 10, as well as the additional elements of claim 11. Accordingly, in view of the Examiner's prior comments, claim 17 and its dependent claims (18-22) are allowable over the cited prior art, Gan.

New method claims 21 and 27 incorporate either the "mixture of two or three phosphates" of claim 12, or require specific types of phosphates not specifically disclosed in the prior art. Accordingly, it is believed that claims 17, 21, 27, and all claims depending from those claims, *i.e.* 17-27 are distinguishable over the prior art, Gan.

Nonetheless, the Examiner's rejections set forth in Paper No. 9, are discussed below.

#### **I. Rejection Under 35 U.S.C. § 102(e) -- Claims 9-11, 13, 15, and 16.**

The Examiner has rejected claims 9-11, 13, 15, and 16 under 35 U.S.C. § 102(e). The Examiner asserts that these claims are anticipated by the disclosure of U.S. Patent No. 6,203,942

B1 of Gan *et al.* ("Gan"). The Examiner asserts that Gan discloses a non-aqueous secondary battery comprising a chargeable and dischargeable positive electrode, a non-aqueous electrolyte containing a lithium salt, and a chargeable and dischargeable negative electrode. According to the Examiner, Gan discloses a phosphate additive that is added to the electrolyte and has the general formula  $(R^1O)P(=O)(OR^2)(OR^3)$ , wherein  $R^1$ ,  $R^2$ , and  $R^3$  are the same or different and may be a hydrogen atom, or a saturated or unsaturated organic group containing one to thirteen carbon atoms. The Examiner states that specific examples of alkylated phosphates disclosed in Gan include tribenzyl phosphate, dimethyl benzyl phosphate, diethyl benzyl phosphate, dipropyl benzyl phosphate, dibutyl benzyl phosphate, dimethyl phosphate, diethyl phosphate, dipropyl phosphate, dibutyl phosphate, diphenyl phosphate, dibenzyl phosphate, monomethyl phosphate, monoethyl phosphate, monopropyl phosphate, monobutyl phosphate, monophenyl phosphate, monobenzyl phosphate, and mixtures of the same. Additionally, the Examiner asserts that Gan discloses a method of producing a non-aqueous electrolyte secondary battery that includes the steps of preparing an electrode material comprising an active material, a conductive agent, and a binder and applying the electrode material on a current collective plate or foil to make an electrode; assembling a non-aqueous electrolyte secondary battery using the electrode and a non-aqueous electrolyte where dibenzyl phosphate additive is dissolved in the electrolyte.

As discussed *supra*, claims 9-11, 13, 15 and 16 have been cancelled. However, the applicants traverse the rejection should it be applied to any of the new claims 17-27.

Gan discloses a lithium ion electrochemical cell containing an electrolyte that includes an alkaline metal salt dissolved in a solvent mixture and an alkyl phosphate compound additive. Gan teaches that the organic phosphate additive is preferable a monoester, a diester, or a tri-ester alkyl phosphate compound having the general formula  $(R^1O)P(=O)(OR^2)(OR^3)$  wherein  $R^1$ ,  $R^2$ , and  $R^3$  are the same or different and may be a hydrogen atom or a saturated or unsaturated organic group containing one to thirteen carbon atoms. Gan further teaches that specific phosphates additives for use in the Gan electrolyte are tris(trimethylsilyl) phosphate, tribenzyl phosphate, dimethyl benzyl phosphate, diethyl benzyl phosphate, dipropyl benzyl phosphate, dibutyl benzyl phosphate, diethyl 2-propenyl phosphate, diphenylmethyl diethyl phosphate, dimethyl phosphate, diethyl phosphate, dipropyl phosphate, dibutyl phosphate, diphenyl phosphate, dibenzyl phosphate, diallyl phosphate, mono-methyl phosphate, mono-ethyl

phosphate, mono-propyl phosphate, mono-butyl phosphate, mono-phenyl phosphate and mono-benzyl phosphate, and mixtures of the same.

Notably, Gan does not disclose an electrolyte containing a mixture of two or three alkyl phosphates where each phosphate in the mixture comprises not less than 30 volume percent based on the total volume of the mixture. Indeed, no volume ratio of one phosphate additive to another is taught or suggested in Gan.

Claims 17-23.

The Gan reference does not teach each element of the claims 17-23, and therefore does not anticipate the invention. Gan does not teach a non-aqueous electrolyte secondary battery including at least one of a positive electrode, a non-aqueous electrolyte, and a negative electrode that contains a mixture of two or three phosphates as described by formulae (1), (2) and (3), where each phosphate of the mixture comprises not less than 30 volume percent based on the total volume of the mixture. Additionally, Gan does not teach a method of producing a non-aqueous electrolyte secondary battery that includes the step of adding to at least one of the active material, the electrode mixture, and/or the electrode, a mixture of two or three phosphates selected from the phosphates represented by formulae (1), (2) and (3), wherein each of the phosphates of the mixture comprises not less than 30 volume percent based on the total volume of the mixture. The disclosure of Gan makes no reference to or disclosure of a mixture of phosphates that includes each phosphate in not less than 30 volume percent of the mixture as recited in claims 17-22, a fact that the Examiner herself has conceded in Paper No. 9 by the statement that claim 12 described allowable subject matter.

Accordingly, for at least these reasons, Gan does not anticipate claims 17-23, for not all elements of the claims are present

Claims 24-27.

The Gan reference does not teach each element of the claims 23-27, and therefore does not anticipate the invention. Gan does not teach with specificity a non-aqueous electrolyte secondary battery including at least one of a positive electrode, a non-aqueous electrolyte, and a negative electrode that contains at least one phosphate that is dipentyl phosphate, dihexyl phosphate, diheptyl phosphate, dioctyl phosphate, dinonyl phosphate, didecyl phosphate,

diundecyl phosphate, didodecyl phosphate, monopentyl phosphate, monohexyl phosphate, monoheptyl phosphate, monooctyl phosphate, monononyl phosphate, monodecyl phosphate, monoundecyl phosphate and/or monododecyl phosphate, nor does it teach a method of preparing the battery using these phosphates.

Indeed, the phosphates specifically recited in Gan as useful additives are tris(trimethylsilyl) phosphate, tribenzyl phosphate, dimethyl benzyl phosphate, diethyl benzyl phosphate, dipropyl benzyl phosphate, dibutyl benzyl phosphate, diethyl 2-propenyl phosphate, diphenylmethyl diethyl phosphate, dimethyl phosphate, diethyl phosphate, dipropyl phosphate, dibutyl phosphate, diphenyl phosphate, dibenzyl phosphate, diallyl phosphate, mono-methyl phosphate, mono-ethyl phosphate, mono-propyl phosphate, mono-butyl phosphate, mono-phenyl phosphate and mono-benzyl phosphate, and mixtures thereof. No specific disclosure of the claimed phosphate is provided.

For at least these reasons, the disclosure of Gan does not anticipate claims 24-27.

Because Gan does not teach each element of the invention as claimed, it does not anticipate it. Reconsideration of the rejection and allowance of new claims 17-27 are respectfully requested.

## **II. Rejection Under 35 U.S.C. § 102(e) -- Claim 14.**

The Examiner has rejected claim 14 under 35 U.S.C. § 102(e) asserting it is anticipated by Gan as evidenced by Electrolyte Datasheet: Beijing Phylion Battery Co. Ltd. ("the Datasheet"). Claim 14 has been cancelled; however, the applicants traverse the rejection should it be applied to any of the new claims.

Only new claims 19 and 23 include the subject matter of canceled claim 14. Claims 19 and 23 depend from independent claim 17 and independent claim 21, respectively. For the reasons discussed *supra*, claims 17 and 21 are fully distinguishable over the disclosure of Gan. The Examiner relies upon the disclosure of the Datasheet to calculate the weight percent of phosphate in the Gan disclosure. This does not remedy the deficiencies of Gan.

Accordingly, for at least these reasons, including those detailed in Section I of this response, Gan interpreted with the disclosure of the Datasheet does not teach each element of the invention as claimed and, therefore, does not anticipate it. Reconsideration of the rejection and allowance of the claims are respectfully requested.

**CONCLUSION**

In view of the foregoing, it is respectfully submitted that new claims 17-27, are patentably distinguishable the cited prior art. It is requested that the Examiner reconsider and withdraw the rejections, and not apply them to new claims 17-27. Allowance of claims 17-27 is earnestly solicited at the earliest opportunity.

Respectfully submitted,

**HIDEHARU TAKEZAWA**

*14 May 2003*  
\_\_\_\_\_  
(Date)

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